

Montana Board of Oil and Gas Conservation  
Environmental Assessment

**Operator:** Continental Resources, Inc.  
**Well Name/Number:** Waterhole Creek 14-10SH  
**Location:** SW SW Section 10 T6N R61E  
**County:** Fallon, **MT;** **Field (or Wildcat)** West Cedar Hills Unit

**Air Quality**

(possible concerns)

Long drilling time: No, 20 to 25 days drilling time.

Unusually deep drilling (high horsepower rig): Yes, triple derrick drilling rig to go 12,836'MD/8824'TVD.

Possible H2S gas production: Yes, possible H2S gas production.

In/near Class I air quality area: No class I air quality area.

Air quality permit for flaring/venting (if productive): Yes, DEQ air quality permit required under 75-2-211.

Mitigation:

☒ Air quality permit (AQB review)

☒ Gas plants/pipelines available for sour gas

☐ Special equipment/procedures requirements

☐ Other: \_\_\_\_\_

Comments: No special concerns – using triple rig to drill to 12,836'MD/8824'TVD.

**Water Quality**

(possible concerns)

Salt/oil based mud: Yes, freshwater and freshwater mud system on surface hole, oil based invert mud system on main hole and brine water for horizontal lateral.

High water table: No high water table anticipated.

Surface drainage leads to live water: No, location is about, ¼ of a mile to the east of an unnamed ephemeral tributary drainage to Corral Creek and about ¼ of a mile southeast of Corral Creek at its closest point.

Water well contamination: No, closest stock water well is about 7/8 of a mile to the northeast from this location and is only 24' in depth. Topographic map indicates a flowing well about 1 1/8 miles to the northeast from this location. Flowing well does not show up on GWIC website. Surface hole will be drilled with freshwater and freshwater mud. Surface casing will be cemented to surface from 1440'.

Porous/permeable soils: No, sandy clay soils.

Class I stream drainage: No Class I stream drainages in the area of review.

Mitigation:

☒ Lined reserve pit

☒ Adequate surface casing

☐ Berms/dykes, re-routed drainage

☐ Closed mud system

☐ Off-site disposal of solids/liquids (in approved facility)

☐ Other: \_\_\_\_\_

Comments: 1440' of surface casing cemented to surface adequate to protect freshwater zones.

## Soils/Vegetation/Land Use

(possible concerns)

Stream crossings: No, stream crossing required.

High erosion potential: No, small cut, up to 6.5' and small fill, up to 8.8', required.

Loss of soil productivity: No, location will be restored after drilling, if nonproductive. If productive unused portion of drillsite will be reclaimed.

Unusually large wellsite: Large wellsite, 270'X400' location size required.

Damage to improvements: Slight, surface use is grass land.

Conflict with existing land use/values: Slight

Mitigation

☐ Avoid improvements (topographic tolerance)

☐ Exception location requested

☒ Stockpile topsoil

☐ Stream Crossing Permit (other agency review)

☒ Reclaim unused part of wellsite if productive

☐ Special construction methods to enhance reclamation

☒ Other: Requires DEQ General Permit for Storm Water Discharge Associated with Construction Activity, under ARM 17.30.1102(28).

Comments: Access will use existing county road and existing oil field/ranch roads. A short access will be built, about 578', from the existing access road into this location. A lined reserve pit will be used to hold drill cuttings and excess drilling fluids. Oil based invert drilling fluids will be recycled after the well in finished drilling. Free liquids in the reserve pit will be trucked to a Class II Disposal. Cuttings will be allowed to dry in the reserve pit, after drying the cuttings will be buried in the lined reserve pit. No special concerns.

## Health Hazards/Noise

(possible concerns)

Proximity to public facilities/residences: None within 1 mile of this location.

Possibility of H2S: Yes, H2S possible.

Size of rig/length of drilling time: Triple drilling rig 20 to 25 days drilling time.

Mitigation:

☒ Proper BOP equipment

☐ Topographic sound barriers

☐ H2S contingency and/or evacuation plan

☐ Special equipment/procedures requirements

☐ Other: \_\_\_\_\_

Comments: Adequate surface casing and operational BOP should mitigate any problems. No concerns

## Wildlife/recreation

(possible concerns)

Proximity to sensitive wildlife areas (DFWP identified): None identified.

Proximity to recreation sites: Little Missouri National Grassland is about 1.25 miles to the east of this location across the state line in North Dakota.

Creation of new access to wildlife habitat: No

Conflict with game range/refuge management: No

Threatened or endangered Species: The only listed threatened or endangered Species in Fallon County is the Whooping Crane. Candidate specie is the Greater Sage Grouse.

Mitigation:

- ☐ Avoidance (topographic tolerance/exception)  
☒ Other agency review (DFWP, federal agencies, DSL)  
☐ Screening/fencing of pits, drillsite  
☐ Other: \_\_\_\_\_

Comments: BLM surface lands. BLM will do surface assessment.

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### Historical/Cultural/Paleontological

(possible concerns)

Proximity to known sites None identified.

Mitigation

- ☐ avoidance (topographic tolerance, location exception)  
☒ other agency review (SHPO, DSL, federal agencies)  
☐ Other: \_\_\_\_\_

Comments: BLM surface lands. BLM will do surface assessment

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### Social/Economic

(possible concerns)

- ☐ Substantial effect on tax base  
☐ Create demand for new governmental services  
☐ Population increase or relocation

Comments: No concerns

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### Remarks or Special Concerns for this site

Well is a 12,836'MD/8824'TVD Red River Formation test.

### Summary: Evaluation of Impacts and Cumulative effects

No long term impacts expected. Some short term surface impacts will occur.

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I conclude that the approval of the subject Notice of Intent to Drill (does/**does not**) constitute a major action of state government significantly affecting the quality of the human environment, and (does/**does not**) require the preparation of an environmental impact statement.

Prepared by (BOGC): /s/ Steven Sasaki  
(title): Chief Field Inspector

Date: November 26, 2010

Other Persons Contacted:

Montana Bureau of Mines and Geology, GWIC  
website

(Name and Agency)

Fallon County water wells

(subject discussed)

November 26, 2010

(date)

US Fish and Wildlife, Region 6 website

(Name and Agency)

ENDANGERED, THREATENED, PROPOSED AND CANDIDATE SPECIES MONTANA  
COUNTIES, Fallon County

(subject discussed)

November 26, 2010

(date)

Montana Natural Heritage Program Website (FWP)

(Name and Agency)

Heritage State Rank= S1, S2, S3, T6N R61E

(subject discussed)

November 26, 2010

(date)

If location was inspected before permit approval:

Inspection date: \_\_\_\_\_

Inspector: \_ \_\_\_\_\_

Others present during inspection: \_\_ \_\_\_\_\_